

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (original): A method for providing authentication in a virtual private network having an AAA server, the method comprising:

receiving a request from a remote user for connection with a virtual private network at a virtual home gateway;
associating the remote user with the virtual private network;
sending a request to authenticate the remote user from the virtual home gateway to the AAA server; and
connecting the remote user to the virtual private network if the AAA server authenticates the user.

Claim 2 (original): The method of claim 1 wherein associating the remote user comprises receiving a virtual private network ID and address of an AAA server of the virtual private network.

Claim 3 (original): The method of claim 2 wherein the virtual private network ID binds a profile of the virtual private network to a routing table of the virtual home gateway.

Claim 4 (original): The method of claim 1 wherein associating the remote user comprises sending a request to a service provider AAA server to authorize the remote user.

Claim 5 (original): The method of claim 4 wherein the service provider AAA server contains the address of the virtual private network's AAA server.

Claim 6 (original): The method of claim 1 wherein sending a request to authenticate the remote user comprises routing the request using a customer routing table of the virtual private network.

Claim 7 (original): The method of claim 1 wherein connecting the remote user to the virtual private network comprises setting up a PPP session for the remote user.

Claim 8 (original): The method of claim 1 further comprising sending an accounting request to the virtual private network's AAA server.

Claim 9 (original): The method of claim 8 further comprising sending an accounting request to the service provider's AAA server.

Claim 10 (currently amended): The method of claim 9 wherein accounting information sent to the virtual private network's AAA server is different than the accounting information sent to the ~~virtual private network's~~ service provider's AAA server.

Claim 11 (original): The method of claim 1 wherein associating a remote user with the virtual private network comprises identifying the virtual private network based on a domain name.

Claim 12 (original): The method of claim 1 wherein associating a remote user with the virtual private network comprises identifying the virtual private network based on a dial-up phone number.

Claim 13 (original): The method of claim 1 wherein associating a remote user with the virtual private network comprises identifying the virtual private network based on a circuit ID.

Claim 14 (original): A computer program product for providing authentication in a virtual private network having an AAA server, the product comprising:

- code that receives a request from a remote user for connection with a virtual private network at a virtual home gateway;
- code that associates the remote user with the virtual private network;
- code that sends a request to authenticate the remote user from the virtual home gateway to the AAA server;
- code that connects the remote user to the virtual private network if the AAA server authenticates the user; and
- a computer-readable storage medium for storing the codes.

Claim 15 (original): The product of claim 14 further comprising code that requests a service provider AAA server to authorize a remote user.

Claim 16 (original): The product of claim 14 further comprising code that sends accounting requests to the virtual private network AAA server.

Claim 17 (original): The product of claim 14 further comprising code that binds a profile of the virtual private network to a routing table of the virtual home gateway.

Claim 18 (original): A system for providing authentication in a virtual private network having an AAA server, the system comprising:

- a virtual home gateway configured to receive requests from a remote user for connection with a virtual private network, send a request to authenticate the remote user

to the AAA server of the virtual private network, and connect the remote user to the virtual private network;

a database for storing addresses of virtual private network AAA servers; and
a processor operable to look up the address of the virtual private network AAA server based on information received from the remote user.

Claim 19 (original): The system of claim 18 wherein the information received from the remote user is a circuit ID.

Claim 20 (original): The system of claim 18 wherein the information received from the remote user is domain name.

Claim 21 (original): The system of claim 18 wherein the information received from the remote user is a dial-up phone number.

Claim 22 (original): The system of claim 18 further comprising a service provider AAA server coupled to the virtual home gateway and configured to authorize the remote user.

Claim 23 (original): The system of claim 18 wherein the database includes virtual private network IDs used to bind virtual private network profiles to a routing table of the virtual home gateway.

Claim 24 (original): The system of claim 23 wherein the virtual home gateway comprises a plurality of routing tables corresponding to different virtual private networks.

Claim 25 (new): A system for providing authentication in a virtual private network having an AAA server, the system comprising:

means for receiving a request from a remote user for connection with a virtual private network at a virtual home gateway;

means for associating the remote user with the virtual private network;

means for sending a request to authenticate the remote user from the virtual home gateway to the AAA server; and

means for connecting the remote user to the virtual private network if the AAA server authenticates the user.

Claim 26 (new): The system of claim 25 wherein means for associating the remote user comprises means for receiving a virtual private network ID and address of an AAA server of the virtual private network.

Claim 27 (new): The system of claim 25 wherein means for associating the remote user comprises means for sending a request to a service provider AAA server to authorize the remote user.

Claim 28 (new): The system of claim 27 wherein the service provider AAA server contains the address of the virtual private network's AAA server.